CLAIMS

1. A system for reducing a size of an image, comprising:

a system for rotating the image in a first direction using a rotation algorithm to generate an intermediate reduced image;

a system for rotating the intermediate reduced image in a direction opposite the first direction using the rotation algorithm to generate a final reduced image; and

wherein the rotation algorithm uses weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values.

2. The system of claim 1, wherein the rotation algorithm calculates each new pixel value using the formula:

$$V_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3-V4) + K_v (V2- V4) + V4,$$

wherein, V_o comprises a rotated data point; V1, V2, V3 and V4 comprise neighboring data points in the image prior to rotation; and K_h and K_v comprise constant values calculated as a function of pixel locations of the rotated image.

3. The system of claim 2, wherein K_h and K_v are stored in a table.

4. The system of claim 1, wherein an amount of size reduction is proportional to an amount of rotation implemented by the rotation algorithm.

5. The system of claim 1, further comprising an enhancement system to boost a dynamic range of the image after the second reduction.

6. The system of claim 1, wherein the final reduced image comprises a total number of pixels that is a multiple of eight.

7. A program product stored on a recordable medium for reducing a size of an original image, comprising:

means for rotating the original image in a first direction to generate an intermediate reduced image;

means for rotating the reduced image in a direction opposite the first direction to generate a final reduced image; and

wherein the means for rotating the original and intermediate reduced image use weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values.

8. The program product of claim 7, wherein the means for rotating the original and reduced image uses the formula:

$$V_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3-V4) + K_v (V2- V4) + V4,$$

wherein, V_o comprises a new pixel; V1, V2, V3 and V4 comprise neighboring pixels in the image prior to rotation; and K_h and K_v comprise constant values calculated as a function of a pixel locations of the rotated image.

9. The program product of claim 8, wherein K_h and K_v are stored in a table

10. The program product of claim 7, wherein an amount of size reduction is proportional to an amount of rotation.

11. The program product of claim 7, further comprising enhancement means to boost a dynamic range of the final reduced image.

12. A method of reducing a size of an image, comprising:

providing an original image having W1 pixels in each row;

generating an intermediate reduced image having W2 pixels in each row, wherein W2 is less than W1, and wherein for each pixel 1 to W2 in each row, pixel values are calculated based on weighted sums of neighboring pixels in the original image; and

generating a further reduced image having W3 pixels in each row, wherein W3 is less than W2, and wherein for each pixel 1 to W3 in each row, pixel values are calculated based on weighted sums of neighboring pixels in the intermediate reduced image.

13. The method of claim 12, further comprising:

enhancing the further reduced image to boost a dynamic range of the further reduced image.

14. The method of claim 12, wherein the step of calculating pixel values based on weighted sums of neighboring pixels in the original image utilizes the formula:

$$W2_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3-V4) + K_v (V2- V4) + V4,$$

wherein, $W2_o$ comprises a calculated pixel; V1, V2, V3 and V4 comprise neighboring pixels in the original image; and K_h and K_v comprise constant values calculated as a function of the number of pixels W2.

15. The method of claim 14, wherein the constant values K_h and K_v are further calculated as a function of the location of $W2_o$ in a row of pixels W2.

16. The method of claim 12, wherein the reduced number of pixels W2 is a multiple of eight.

17. A system for reducing a size of an original image, wherein the original image has a predetermined number of pixels W1 in a row, the system comprising:

a system for generating an intermediate reduced image having a reduced number of pixels W2 in the row, wherein W2 is less than W1, and wherein for each pixel 1 to W2 in the row, pixel values are calculated based on weighted sums of neighboring pixels in the original image; and

a system for generating a further reduced image having a reduced number of pixels W3 in the row, wherein W3 is less than W2, and wherein for each pixel 1 to W3 in the row, pixel values are calculated based on weighted sums of neighboring pixels in the intermediate reduced image.

18. The system of claim 17, further comprising:

an enhancement system to boost a dynamic range of the further reduced image.

19. The system of claim 17, wherein the pixel values are calculated with the formula:

$$W2_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3-V4) + K_v (V2- V4) + V4,$$

wherein, $W2_o$ comprises a calculated pixel; V1, V2, V3 and V4 comprise neighboring pixels in the original image; and K_h and K_v comprise constant values calculated as a function of the number of pixels W1.

20. The system of claim 19, wherein the constant values K_h and K_v are further calculated as a function of the location of $W2_o$ in the row of W2 pixels.

21. The system of claim 17, wherein the reduced number of pixels W3 is a multiple of eight.